

REMARKS

Reconsideration of the above-identified application is requested in view of the remarks that follow.

In the December 12, 2005, Office Action in this application, the Examiner maintained his prior rejection of claims 1-3 under 35 U.S.C. 103(a) as being unpatentable over the Bol et al. '775 patent in view of the Pfirsch '445 patent. Claims 1-3 have been cancelled. Claims 4-6 have been added. For the reasons set forth below, Applicant traverses the foregoing rejection as applied to claims 4-6.

In accordance with the invention, as defined by new independent claims 4-6, a single dopant region of an integrated circuit structure is formed in a single ion implant step to have a graded dopant concentration profile. The graded profile is obtained using specified mask openings at the perimeter of a primary dopant region; the perimeter mask opening has the minimum geometry of the fabrication process.

In contrast, the Bol et al. patent teaches the creation of a series of separate doped regions using several mask openings and a single implant; no specified width of mask opening is disclosed or suggested.

The Pfirsch reference teaches the creation of two separate regions, one with high doping and one with low doping, using various size mask openings and a single implant step.

The only similarity between the teachings of the two references is that each uses a single implant step to arrive at its completely distinct dopant implant structure.

It is noted that the Bol et al. reference requires that the dopant regions created by the mask openings be electrically isolated from each other. This is implicit to a person skilled in the art based upon the use of the term "guard rings" in the Bol et al. disclosure. If, as is the case in the claimed invention, the "guard rings" are electrically joined to the main junctions, then they are not guard rings at all. The differences between true guard rings and the dopant regions of the invention are discussed in the application at lines 20-22 of page 1, wherein it is stated: "To function properly, floating guard rings must be electrically isolated from the main junction; this

is not possible with certain types of implants. Such as n+ buried layers with overlying n-type epitaxial layer."

With respect to the Pfirsch reference, while the reference does disclose the use of mask openings where a dopant diffuses completely underneath the closed mask to create a single region, the reference discloses only the formation of uniformly doped regions rather than the dopant grading profile of the single dopant region recited in Applicant's claims. Furthermore, this is done without use of the minimum geometry mask features recited in Applicant's new claims.

In view of the above, Applicant submits neither the Bol et al. reference or the Pfirsch reference, whether considered individually or in combination, either teaches or suggest the invention recited in Applicant's new claim 4-6. Thus, Applicant submits that all claims now present in this application patentably distinguish over the prior art and requests that this application be passed to allowance.

Respectfully submitted,

STALLMAN & POLLOCK LLP

Date: May 10, 2006

By: Michael J. Pollock  
Michael J. Pollock (Reg. No. 29,098)

Attorneys for Applicant(s)